CLAIMS

1. A method of counteracting the effects of variation in static pressure upon a hollow rotor blade or hydrofoil (6, 7) immersed in the (8) of flowing water or other liquid by equalising the pressure inside and outside the rotor blade or hydrofoil.

2. A method as claimed in claim1, and characterised in that the pressure is equalised by filling any voids (17) in the rotor blade or hydrofoil with a liquid.

3. A method as claimed in claim I or 2 and characterised in that the pressure equalisation is controlled by means of pressure balancing control means (22, 23) provided upon the rotor blade or hydrofoil.

4. A method as claimed in claim 1, 2 or 3 and characterised in that the pressure control is effected by means of a diaphragm (22) or piston arrangement (23) provided upon the rotor blade of hydrofoil.

5. A method of counteracting the effects of variation in static pressure acting upon a hollow rotor blade or (6, 7) for devices capable of extracting energy from a moving column (8) of water or other liquid within which the rotor of hydrofoil is located whether the device rotates as in the case of an axial flow turbine (1) or whether it reciprocates in the flow such that cyclic static pressure fluctuations caused by vertical movement of the rotor blades or hydrofoils through the water column including the step of equalising the pressure inside and outside the rotor blade or hydrofoil by filling any voids (17) within the hollow rotor blades or hydrofoils with a liquid in such manner as to allow the external surface of said rotor blades or hydrofoils to "breathe"; i.e., to expand and contract under the influence of external static pressure variations, whereby cyclic static pressure fluctuations caused by vertical movement of the rotor blades or hydrofoils through the water column (8) do not cause fluctuating stresses in the rotor

blades or hydrofoils (6, 7).

6. A method for filling the voids in the rotor blades or hydrofoils (6,7) for devices capable of extracting energy from a moving water column (8), whether the device rotates as in the case of an axial flow (1) or whether it reciprocates in the flow whereby cyclic static pressure fluctuations caused by vertical movement of the rotor blades or hydrofoils through the water column (8) do not cause large fluctuating stresses as a result of air-filled or gas-filled voids (17) allowing the external surface (26) of said rotor blades or hydrofoils to "breathe"; i.e., to expand and contract under the influence of external static pressure variations..

7. A method as claimed in any one of the preceding claims and characterised by flooding the interior (17) of a hollow rotor blade or hydrofoil with liquid in such a way that it is not possible for a void to form which can allow a "breathing" effect when the rotor blade (6, 7) moves cyclically through a vertical distance in the water column.

8. A method as claimed in claim 1 and characterised by the steps of filling any voids (17) within a rotor blade or hydrofoil (6, 7) with water or other substantially incompressible liquid, the arrangement being such that potential for the casing (16) or outer surface of the hydrofoil or rotor blade to suffer undesired stresses and strains as a result of the a 'breathing' effect will be significantly reduced.

9. A turbine rotor or hydrofoil (4) of hollow construction, and including means (22, 23) for enabling equalisation of internal and external pressures arising on the blades or hydrofoil during cyclic movement of the blade or hydrofoil (6, 7) through a vertical distance when located in a moving column (8) of water or other liquid.

10. A turbine rotor blade or hydrofoil of a hollow construction as claimed in claim 9, and characterised in that the interior (17) of the hollow rotor blade or hydrofoil (6, 7) is adapted to be filable with a liquid in such a way that it is not possible for a void to form within the blade or hydrofoil interior such as to allow the rotor blades or hydrofoils to 'breathe' during cyclic movement of the blade or hydrofoil through a vertical distance in a moving column of water or other liquid.

11. A turbine rotor blade or hydrofoil of a hollow construction as claimed in claim 10, and characterised in that the rotor blades or hydrofoils (6, 7) are provided with openings (18, 20) at the extremities thereof for the purposes of the filling of the blades or hydrofoils with water or other liquid and to allow air to be displaced when the rotor or hydrofoil is submerged.

12. A turbine rotor blade or hydrofoil of hollow construction as claimed in claim 9, and characterised in that pressure balancing control means (22,23) are provided upon the rotor blade or hydrofoil (6,7), the arrangement being such as to enable the pressure equalisation of the rotor blade or hydrofoil.

13. A turbine rotor or hydrofoil of hollow construction as claimed in claim 12, and characterised in that a diaphragm means (22) is provided on the blade or hydrofoil (6,7) for enabling the pressure equalisation the arrangement being such as to enable equalisation of the pressure of an internal fluid filling the internal (17) relative to external pressure conditions.

14. A turbine rotor or hydrofoil of hollow construction as claimed in claim 12, and characterised in that a piston and cylinder arrangement (23) is provided on the blade or hydrofoil (6, 7) for enabling the pressure equalisation, the arrangement being such as to enable equalisation of the pressure of an internal fluid filling the internal voids (li) relative to external pressure conditions.

15. A turbine rotor or hydrofoil of a hollow construction as claimed in claim 9, 10 or 11, and characterised in that the interior of said rotor blade or hydrofoil (6, 7) is treatable treated with anti-fouling and/or anti-corrosive coatings to prevent internal marine growth, bio-fouling and/or corrosion.

16. A turbine rotor of hydrofoil of hollow construction as claimed in any one of claims claim 12 to 15, and characterised by separate filling and draining orifices for the liquid used for filling the rotor or hydrofoil and by plugs or caps to contain the filling fluid and prevent ingress of the external fluid.